

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method comprising:

providing a first and a second fluid maintained separately from each other by a third fluid in a common, sealed vessel, wherein the third fluid is substantially immiscible with the first and second fluids, and wherein the first, second and third fluids are stored within the common, sealed vessel for at least one day;

transferring the first, third, and second fluids in series from the vessel to a reaction site to carry out a predetermined chemical or biochemical reaction; and

avoiding contact between the first and second fluids, at least until after the fluids have been applied to the reaction site.

2. (Original) The method of claim 1 further comprising connecting the vessel to a device comprising the reaction site.

3. (Cancelled)

4. (Currently amended) The method of claim 13 wherein the vessel and reaction site are on a common platform.

5. (Currently amended) The method of claim 13 wherein the vessel and reaction site are integrally connected during storage of the first, second and third fluids in the vessel.

6. (Original) The method of claim 1 wherein the vessel comprises a tube.

7. (Original) The method of claim 1 further comprising applying a pressure differential across the reaction site.

8. (Original) The method of claim 7 wherein the pressure differential is provided by suction on a downstream side of the reaction site.
9. (Currently amended) The method of claim 4-7 wherein the pressure differential is provided by a pump on an upstream side of the reaction site.
10. (Original) The method of claim 1 wherein the first and second fluids are transferred in series to the reaction site without actuating a valve.
11. (Original) The method of claim 1 wherein the first and second fluids are transferred in series to the reaction site without actuation of any device that controls the rate, the order, or timing of introduction of either of the first and second fluids, relative to each other, to the reaction site.
12. (Cancelled)
13. (Currently amended) The method of claim 4-2 wherein the device is a microfluidic device.
14. (Cancelled)
15. (Original) The method of claim 1 wherein at least one of an antibody or an antigen is associated with the reaction site.
16. (Cancelled)
17. (Currently amended) The method of claim 42-1 wherein the third fluid is a gas or a gaseous mixture.
18. (Currently amended) The method of claim 43-1 wherein the second fluid is a rinse solution.

19. (Currently amended) The method of claim 4-2 further comprising disposing a sample in the device prior to applying the first and second fluids to the reaction site.

20-21. (Cancelled)

22. (Currently amended) The method of claim 1 wherein the second fluid is produced by combining a third fluid and vessel contains a fourth fluid, the method further comprising combining the fourth fluid and the second fluid while transferring the first, third, and second fluids from the vessel to the reaction site.

23-27. (Cancelled)

28. (Currently amended) The method of claim 5-1 wherein the tube-vessel has a length to inner diameter ratio of at least 10:1.

29. (Cancelled)

30. (Currently amended) The method of claim 5-1 wherein the tube-vessel has an inner diameter of less than 1 millimeter.

31. (Currently amended) The method of claim 5-1 wherein the tube-vessel has an inner diameter of less than 500 microns.

32-33. (Cancelled)

34. (Original) The method of claim 1 wherein one of the fluids comprises a gold conjugated antibody.

35. (Original) The method of claim 1 wherein one of the fluids comprises a metal precursor.

36. (Original) The method of claim 35 further comprising electrolessly depositing metal at the reaction site to produce an opaque material.
37. (Original) The method of claim 36 further comprising determining light absorbance or transmission through the opaque material.
38. (Cancelled)
39. (Withdrawn) An apparatus comprising:
 - a sealed vessel;
 - a first static fluid disposed in the vessel;
 - a second static fluid disposed in the vessel; and
 - a third static fluid disposed in the vessel, wherein the third fluid separates the first and second fluids, and at least the first and second fluids are selected for use in a predetermined chemical or biological reaction in a predetermined sequence, and wherein the vessel and the first, second, and third fluids are selected such that the vessel and fluids disposed therein can be stored for a period of at least one day and can be handled under normal packaging and shipping conditions while maintaining the fluids in predetermined positions relative to each other within the vessel, without detriment to the fluids' ability to participate in the predetermined chemical or biological reaction.
40. (Withdrawn) The apparatus of claim 39 wherein the first and second fluids are liquids.
41. (Withdrawn) The apparatus of claim 39 wherein the third fluid is a gas or a gaseous mixture.
42. (Withdrawn) The apparatus of claim 41 wherein the third fluid is air.

43. (Withdrawn) The apparatus of claim 41 wherein the third fluid is nitrogen.
44. (Withdrawn) The apparatus of claim 39 further comprising additional distinct fluids.
45. (Withdrawn) The apparatus of claim 44 wherein the additional distinct fluids are of the same type as either the first fluid or the second fluid.
46. (Withdrawn) The apparatus of claim 39 wherein at least one of fluid 1 or fluid 2 comprises a chemical or biochemical agent.
47. (Withdrawn) The apparatus of claim 39 wherein at least one of fluid 1 or fluid 2 comprises a rinse solution.
48. Cancelled.
49. (Withdrawn) The apparatus of claim 48 wherein the first, second, and third fluids are selected such that the vessel and fluids disposed therein can be stored for a period of at least one week.
50. (Withdrawn) The apparatus of claim 48 wherein the first, second, and third fluids are selected such that the vessel and fluids disposed therein can be stored for a period of at least one month.
51. (Withdrawn) The apparatus of claim 48 wherein the first, second, and third fluids are selected such that the vessel and fluids disposed therein can be stored for a period of at least one year.
52. (Withdrawn) The apparatus of claim 39 wherein the vessel is comprised of a polymeric material.

53. (Withdrawn) The apparatus of claim 52 wherein the polymeric material is selected from polyethylene, polypropylene and PTFE.

54. (Withdrawn) The apparatus of claim 39, wherein at least one of the first and second fluids contains a species capable of participating in a biological or chemical assay.

55. (Withdrawn) The apparatus of claim 39, wherein at least one of the first and second fluids contains a species capable of participating in a biological assay, and the third fluid is inert with respect to the assay and is selected to separate the first and second fluids and to prevent them from mixing.

56. (Withdrawn) The apparatus of claim 39 wherein the vessel is a tube having a length to internal diameter ratio of at least 10:1.

57. (Withdrawn) The apparatus of claim 56 wherein the tube is convoluted.

58. (Withdrawn) The apparatus of claim 39 wherein the vessel is heat-sealable.

59. (Withdrawn) A method comprising:

flowing a first fluid into a vessel;

flowing a second fluid into the vessel, the second fluid being substantially immiscible with the first fluid;

flowing a third fluid into the vessel, wherein the third fluid is substantially immiscible with the second fluid and wherein the third fluid is not contacting the first fluid;

sealing the fluids in the vessel; and

storing the sealed vessel for greater than one day.

60. (Withdrawn) The method of claim 59 wherein the vessel comprises a tube.

61. (Withdrawn) The method of claim 59 wherein each of the first and third fluids form fluid plugs in the vessel.
62. (Withdrawn) The method of claim 61 further comprising forming additional fluid plugs in the vessel.
63. (Withdrawn) The method of claim 59 wherein the first and third fluids are liquids and the second fluid is a gas or a gaseous mixture.
64. (Withdrawn) The method of claim 63 wherein at least one of the first and third fluids comprises a chemical or biochemical agent.
65. (Withdrawn) The method of claim 64 wherein at least one of the first and third fluids is a biochemical agent.
66. Cancelled.
67. (Withdrawn) The method of claim 60 wherein the tube is comprised of a polymer.
68. (Withdrawn) The method of claim 67 wherein the ratio of the length of the tube to the internal diameter of the tube is at least 10:1.
69. (Withdrawn) The method of claim 67 wherein the tube is convoluted.
70. (Withdrawn) An apparatus comprising:
a sealed vessel comprising a chamber, defining a continuous void, containing a first fluid and a second fluid, the first and second fluids constructed and arranged to be deliverable from the vessel separately for sequential use in a predetermined chemical or biological reaction wherein the

sealed vessel is constructed and arranged for storing the first and second fluids for at least one hour prior to use of the first and second fluids in the predetermined chemical or biological reaction.

71. (Withdrawn) The apparatus of claim 70 wherein the sealed vessel is constructed and arranged for storing the first and second fluids for at least one day prior to use of the first and second fluids in the predetermined chemical or biological reaction.

72. (Withdrawn) The apparatus of claim 70 wherein the sealed vessel is constructed and arranged for storing the first and second fluids for at least one week prior to use of the first and second fluids in the predetermined chemical or biological reaction.

73. (Withdrawn) The apparatus of claim 70 wherein the sealed vessel is constructed and arranged for storing the first and second fluids for at least one year prior to use of the first and second fluids in the predetermined chemical or biological reaction.

74. (Withdrawn) The apparatus of claim 70 wherein the sealed vessel is constructed and arranged to be transported from a first location to a second location

75. (Withdrawn) A method comprising providing the apparatus of claim 70 and storing the apparatus for more than one day.

76. (Withdrawn) The method of claim 75 wherein the apparatus is stored at a temperature equal to or below 4 degrees C.

77. (Withdrawn) The method of claim 75 wherein at least one of the fluids is frozen.

78. (Withdrawn) An assay kit comprising:
a surface including a microfluidic channel;

at least one of an antibody or an antigen associated with a portion of the microfluidic channel;

a vessel;

a first static fluid disposed in the vessel, the first static fluid comprising a metal colloid associated with an antibody or an antigen;

a second static fluid disposed in the vessel, the second static fluid comprising a metal precursor;

a third static fluid disposed in the vessel, wherein the third fluid separates the first and second fluids and

instructions for performing the assay.

79. (Withdrawn) The assay kit of claim 78 wherein the vessel is disposed on the surface.

80. (Withdrawn) The assay kit of claim 78 wherein the vessel is constructed and arranged to be capable of being placed in fluid communication with the microfluidic channel.

81. (Currently amended) A method comprising:

providing a reaction site;

providing a first and a second fluid statically maintained separately from each other in a common, sealed vessel for greater than one minute, wherein the vessel and the reaction site are on a common platform;

applying in series the first and second fluid to athe reaction site; and

avoiding contact between the first and second fluids, at least until after the fluids have been applied to the reaction site.

82. (Original) The method of claim 81 wherein the first and second fluids are statically maintained for greater than one day.

83-92. (Cancelled)

93. (New) The method of claim 4 wherein the vessel and reaction site are formed on a microfluidic chip.

94. (New) The method of claim 1 wherein the vessel comprises at least first and second branches that are in fluid communication with each other and with the remaining interior of the vessel.

95. (New) The method of claim 94 wherein the first branch contains a fourth fluid and the second branch contains a fifth fluid, the fourth and fifth fluids adapted and arranged to react with one another to form a sixth fluid.

96. (New) The method of claim 1, further comprising passing a sample across the reaction site prior to initiation of the transferring step.

97. (New) The method of claim 2, further comprising introducing a sample into the device from a vessel different from the vessel containing the first, third and second fluids.